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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/739,078	12/13/2000	Harald S. Gross	004701 USA/ETEC/MBE	3254

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12/14/2001

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EXAMINER

HARAN, JOHN T

ART UNIT

PAPER NUMBER

1733

5

DATE MAILED: 12/14/2001

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/739,078

Applicant(s)

GROSS, HARALD S.

Examiner

John T. Haran

Art Unit

1733

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 December 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) 36-39 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-35, drawn to a method of anodic bonding.
 - II. Claims 36-39, drawn to a device formed from an anodic bonded structure.
2. The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the process as claimed could be used to make other and materially different product such as anodic bonded structures that contain cations but not at a critical bonding surface.
3. Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.
4. During a telephone conversation with Shirley Church on 12/6/01 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-35. Affirmation of this election must be made by applicant in replying to this Office action. Claims 36-39 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-8, 11-16, and 28-35 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, the phrase "capable of forming an electrochemical cell in combination with the conductive layer" renders the claim indefinite because it is unclear what makes a material capable of forming an electrochemical cell and it is unclear what difference it makes whether or not an electrochemical cell is capable of being formed because there is no positive method step of forming an electrochemical cell.

In claims 3, 11, and 33, the phrase "alternating layers" renders the claim indefinite because alternating layers implies there are more than two layers but there is no positive method step of there being at least one conductive layer and at least one second material. There needs to be a method step of alternating the layers in some fashion.

Claims 8, 16, 28, and 29 are indefinite because there is no step of forming any electrochemical cells and it is unclear what the term parallel is intended to mean in this context. It is also noted that claims 16 and 28 are the same claim. One should be cancelled.

Claim 29 is also indefinite because there are no process steps for anodic bonding and it is unclear what material is being bonded together.

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7. Claims 8, 16, 28, and 29 recite the limitation "electrochemical cell". There is insufficient antecedent basis for this limitation in the claims.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1-2, 9-10, and 17-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Kobori et al (U.S. Patent 4,802,952).

Kobori et al disclose a method for anodic bonding silicon chips to borosilicate glass that avoids accumulation of sodium ions at the bonding interface of the silicon and glass (Column 1, lines 27-33). A glass layer between two silicon wafers is bonded to the silicon wafers through anodic bonding. One of the silicon wafers has a conductive layer in the form of a matrix to which the DC voltage is applied. The matrix is formed so that it contacts the portion of the glass not bonded to the wafer so that all the sodium ions formed in the glass during the bonding are directed away from the critical bonding surfaces and towards the conductive matrix (Column 4, lines 30-36 and Column 5, lines 21-29).

Regarding claims 2 and 10, the contamination surface (conductive matrix) is located relative to the critical bonding surface such that the contamination surface does not affect the function of the device.

Regarding claims 17 through 21, the silicon wafer (conductive layer of the claim) is a semiconductor and is silicon, the glass is borosilicate, the anodic bonding occurs at 325 degrees Celsius and a DC voltage of 1000 volts (1 kV) (Column 4, lines 41-50).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 22-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobori et al (U.S. Patent 4,802,952) in view of the admitted prior art.

Regarding claims 22-24, Kobori et al is silent towards using alternate materials. The admitted prior art teaches it is known to use lithium aluminosilicate B-quartz glass ceramic for anodic bonding at 140 to 180 degrees Celsius with a voltage of 300 to 700. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use known alternate materials in the method of Kobori et al and to change the parameters accordingly.

Regarding claims 25-26, it is well known and conventional to bond metal to glass via anodic bonding. It would have been obvious to utilize metal as the conductive layer.

Regarding claim 27, the admitted prior art teaches it is well known and conventional to alternate multiple conductive layers with multiple glass layers. It would have been obvious to do so in the method of Kobori et al.

Allowable Subject Matter

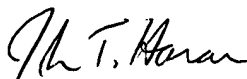
12. The prior art of record fails to suggest the concept of alternating conductive layers and layers of a second material such as glass and separately contacting an electrode to each individual layer.

Conclusion


13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **John T. Haran** whose telephone number is **(703) 305-0052**. The examiner can normally be reached on M-Th (8 - 5) and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Ball can be reached on (703) 308-2058. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-7718 for regular communications and (703) 305-3599 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.


John T. Haran

December 12, 2001


Michael W. Ball
Supervisory Patent Examiner
Technology Center 1700